

UNITED STATES DEPARTMENT OF AGRICULTURE  
SOIL CONSERVATION SERVICE  
WASHINGTON, D.C.

and the

HAWAII INSTITUTE OF TROPICAL AGRICULTURE AND HUMAN RESOURCES  
UNIVERSITY OF HAWAII  
HONOLULU, HAWAII

NOTICE OF RELEASE OF 'TROPIC SHORE' SEASHORE PASPALUM

The United States Department of Agriculture, Soil Conservation Service, and the Hawaii Institute of Tropical Agriculture and Human Resources, University of Hawaii, announce the release of 'Tropic Shore' seashore paspalum, Paspalum vaginatum Swartz.

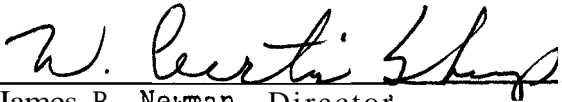
'Tropic Shore' was collected along the seashore at the wave line of the Pacific ocean, in Kailua, Hawaii, on the island of Oahu. It was tested under the identification numbers 9037868, T-37868 and HA-190. The natural range of Paspalum vaginatum extends to **both** hemispheres and it is found growing on seacoasts from Australia to southern Spain and **from** Argentina and Chile to Baja California and North Carolina. Its distribution is pan-tropical and it is indigenous or naturalized throughout the Pacific. **Seashore paspalum grows** in saltwater coastal marshes **and** coastal mud and sand flats in the Hawaiian Islands, American Samoa, Caroline Islands, Guam and the Commonwealth of the Northern Marianas Islands. It is one of the most salt-tolerant grasses known and has been reported to grow with water containing total soluble salts of more than 10,000 parts per million. **It Kill also grow** with fresh water.

'Tropic Shore' is a perennial creeping **grass** that is stoloniferous and rhizomatous. It normally grows to a height of about 15 inches (38 cm) but under conditions of high fertility it will reach a maximum height of 20 inches (50.8 cm). Its medium sized stems are abundant and prostrate. The stolons or runners root at the nodes to form a dense sod-like cover. Newly **emerging** leaves are folded in the bud shoot. The abundant, **well-distributed** mature leaves have stiffly ascending blades that are rolled toward the tips. The blades are slender, **gradually** tapering to an acute point and are approximately 3 to 8 inches (7.6 to 20.3 cm) long by .25 inch (6.4 mm) wide at the base. Inflorescences are sparse and develop within the foliage, **below** the tips of the ascending leaves. They consist of two 1-sided racemes 1.3 to 1.5 inches (3.3 to 3.8 cm) long which are at first together, then spreading as they mature. Spikelets are .10 to .14 inch (2.5 to 3.5 mm) long. The flowering culms are usually semi-erect and about 10 to 15 inches (25.4 to 38.1 cm) high.

'Tropic Shore' **was** tested and developed primarily for stabilizing **the** shoreline and banks of aquaculture ponds, canals and streams having brackish or salty water. Once established, **this** grass provides good protection from strong waves. It has been less aggressive with regard to growing out in the water than other grass strains tested. This is important to aquaculture harvesting operations. It may be planted for pasture, lawns and other uses where only salty water is available. It may also be used for erosion control where the water is nonsaline.

'Tropic Shore' is adapted to low-elevation sites along the edge of canals, ponds, streams and ocean beaches where it grows at and slightly above and below the normal water level. In Hawaii, it is best adapted to brackish coastline sites on soils ranging from sand to clay. It has grown well at pH values ranging from 6.7 to 8. Under saline conditions, little or no fertilizing is needed. It responds favorably to fertilizer when grown with nonsaline or fresh water.

'Tropic Shore' is asexually propagated and plant material of foundation quality will be maintained by the Soil Conservation Service's Plant Materials Center, Hoolehua, Molokai, Hawaii. Vegetative material is available to commercial producers and others for establishing their production fields.



James B. Newman, Director  
Ecological Sciences  
Technology Development and Application  
Soil Conservation Service, USDA  
Washington, D.C.

3-22-88

Date

Richard N. Duncan, State Conservationist  
Soil Conservation Service, USDA  
Honolulu, Hawaii

Date



Chauncey T. Ching, Director  
Hawaii Institute of Tropical Agriculture  
and Human Resources  
University of Hawaii  
Honolulu, Hawaii

2-24-88

Date

DOCUMENTATION FOR RELEASE AND PERFORMANCE SUMMARY OF 'TROPIC SHORE'

SEASHORE PASPALUM, PASPALUM VAGINATUM SWARIZ



Harvesting the University of Hawaii Marine Shrimp Research aquaculture ponds.  
'Tropic Shore' is growing at water line and approximately five feet up bank.  
Bermudagrass is growing on upper part of berm.

DOCUMENTATION FOR THE RELEASE OF 'TROPIC SHORE' SEASHORE PASPALUM

Scientific Name: Paspalum vaginatum Swartz

Common Name: seashore paspalum, saltgrass, siltgrass, knotgrass

Cultivar Name: 'Tropic Shore'

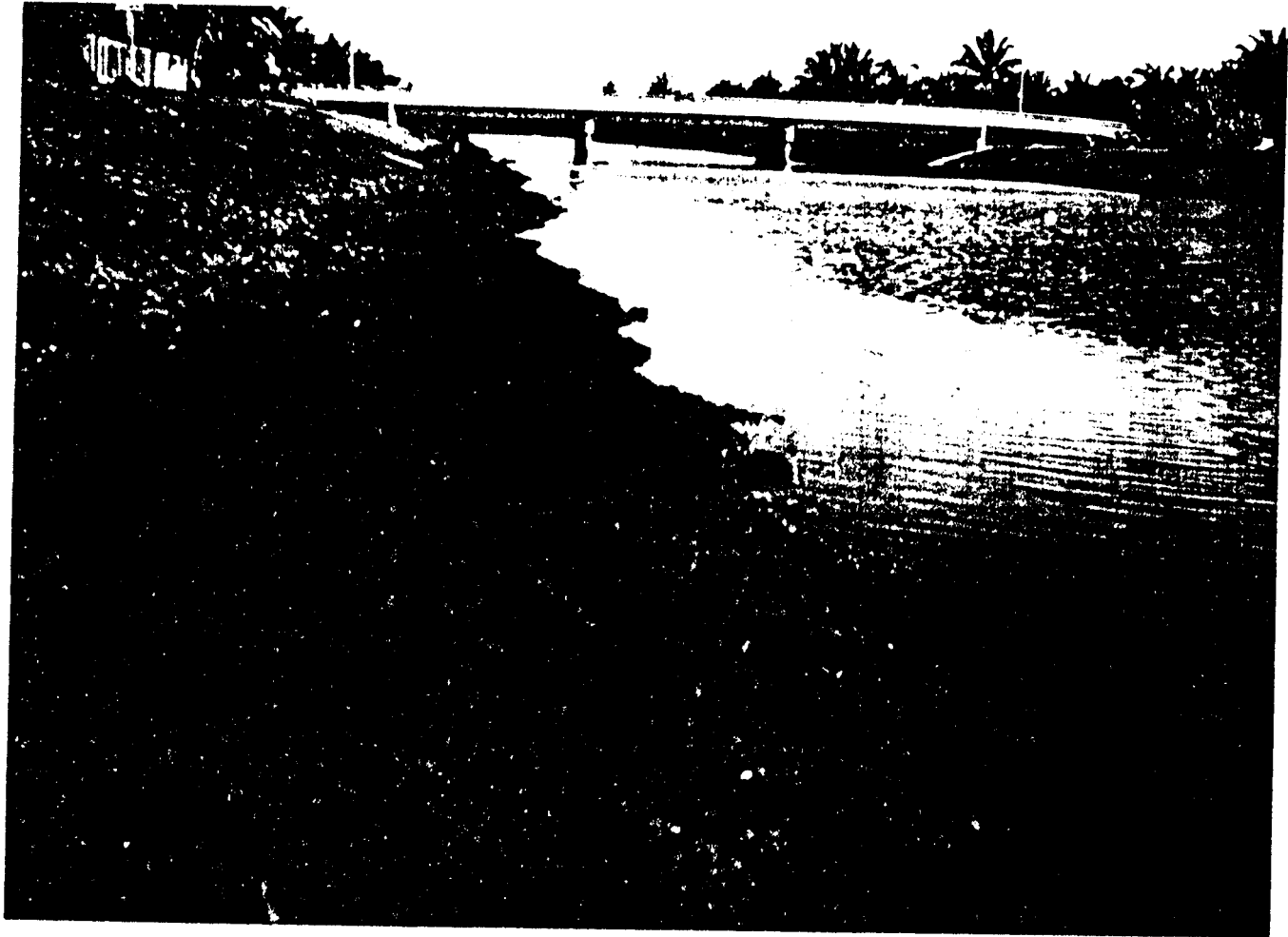
Other Identification Used: 9037868, T-37868, HA-190

Origin: Origin unknown. In July, 1967, vegetative material of 'Tropic Shore' was collected by D. N. Palmer along the seashore about .75 mile (1.2 km) S.E. of the Kawaiui Canal outlet in Kailua, Oahu, Hawaii. This particular plant had been growing at the wave line of the Pacific ocean and had made good protective cover over an area of about 3 by 4 feet (.9 by 1.2 m). The grass was also established along the banks of the Kawaiui Canal and provided excellent bank protection along most of the canal. The natural range of Paspalum vaginatum extends to both hemispheres and it is found growing on seacoasts from Australia to southern Spain and from Argentina and Chile to Baja California and North Carolina. Its distribution is pan-tropical and it is indigenous or naturalized throughout the Pacific. It grows in saltwater coastal marshes and coastal mud and sand flats in the Hawaiian Islands, American Samoa, Caroline Islands, Guam and the Commonwealth of the Northern Marianas Islands.

Description: A perennial, rapid-spreading, low-growing, stoloniferous, rhizomatous grass. It normally grows to a height of about 15 inches (38 cm) but it can reach heights of up to 20 inches (50.8 cm) if it is grown in fertile soils. Stems are abundant, prostrate and medium sized. The stolons contain numerous nodes that root to form a dense, sod-like cover. Newly emerging leaves are folded in the bud shoot. The abundant, well-distributed mature leaves have stiffly ascending blades that are rolled toward the tips. The blades are slender, gradually tapering to an acute point and are approximately 3 to 8 inches (7.6 to 20.3 cm) long by .25 inch (6.4 mm) wide at the base. Inflorescences are sparse and develop within the foliage, below the tips of the ascending leaves. They consist of two 1-sided racemes 1.3 to 1.5 inches (3.3 to 3.8 cm) long which are at first together, then spreading. Spikelets are .10 to .14 inch (2.5 to 3.5 mm) long. The flowering culms are usually semi-erect and about 10 to 15 inches (25.4 to 38.1 cm) high.

Method of Development: Asexual propagation of original material after comparison with other cultivars and accessions of Paspalum, Pennisetum, Distichlis and Brachiaria spp. in observation nurseries, secondary testing and field planting sites in Hawaii, Guam and Florida.

Uses: Primarily for stabilizing the shoreline and banks of aquaculture ponds, canals and streams having brackish or salty water. Once established, this grass provides good protection from strong waves. It has been less aggressive with regard to growing out in the water than other grass strains tested. This is important to aquaculture harvesting operations. 'Tropic Shore' can be used for lawns, pasture and other purposes; where only salty water is



A natural stand of 'Tropic Shore' seashore paspalum providing bank protection on the Kawainui Canal near the site where the original plant material was collected.

available. Seashore paspalum is one of the most salt-tolerant grasses known and has been reported to grow with water containing total soluble salts of more than 10,000 parts per million. It can also be used for erosion control where the water is nonsaline.

Area of Adaptation: Adapted to low elevation sites along the edge of canals, ponds, streams and ocean beaches where it grows at and slightly **above** and below the normal water level. In Hawaii it is best adapted to brackish coastline sites on soils ranging from sand to clay. It has grown well at pH values ranging from 6.7 to 8. It will grow with saline and fresh water. Under saline conditions, little or no fertilizer is needed. It responds favorably to fertilizer when grown with nonsaline or fresh water.

Diseases or Insect Problems: No significant problems reported,

Increase and Distribution: The SCS Plant Materials Center, Hoolehua, Molokai, Hawaii will maintain a block of 'Tropic Shore' seashore paspalum. Vegetative material will be available to commercial growers and others interested in establishing production fields.

Submitted By: This recommendation for the release of 'Tropic Shore' seashore paspalum was prepared and submitted by Robert J. Joy, Plant Materials Specialist, USDA, Soil Conservation Service and Peter P. Rotar, Agronomist, Department of Agronomy and Soil Science, University of Hawaii, for the joint release by the Soil Conservation Service and the Hawaii Institute of Tropical Agriculture and Human Resources, University of Hawaii, December, 1987.

## PERFORMANCE SUMMARY OF 'TROPIC SHORE' SEASHORE PASPALUM

### Secondary Testing on the SCS Hawaii Plant Materials Center

An experiment was conducted on Holomua silt loam soil at the SCS Hawaii Plant Materials Center on Molokai to compare the growth characteristics of 'Tropic Shore' seashore paspalum (Paspalum vaginatum), T-37878 seashore paspalum (Paspalum vaginatum), 'Tropic Lalo' paspalum (Paspalum hieronymii), common kikuyugrass (Pennisetum clandestinum) and 'Pensacola' bahiagrass (Paspalum notatum). Kikuyugrass was used as the standard for comparison because of its vigorous and rapid growth. Evaluations were made by Larry Yamamoto, Soil Conservationist, Glenn Sakamoto, Soil Conservationist and John Mokiao, Biological Technician.

The trial, planted on 6/17/82, consisted of a randomized complete block design with three replications except for T-37878 seashore paspalum which was planted to two non-randomized plots. The species were plugged in the plots 6 inches (15 cm) apart, in a single row 10 feet (3 m) long. Plots were 10 feet (3 m) apart within the replicates and 20 feet (6 m) between replicates. Irrigations, using fresh water, were applied uniformly with sprinklers as needed. Urea (46-0-0) was broadcast uniformly over all plots on 5/20/83 at the rate of 50 pounds per acre (56 kg/ha), actual N. No other fertilizers or pesticides were applied. No severe insect or disease problems were observed. Data collected included those criteria considered important to determine an effective, low-maintenance ground cover: maximum growth height and vertical growth rate in an unclipped situation (Table 1), rate of lateral growth or spread without trimming (Table 2), top growth yield after clipping (Table 3), and percent cover (Table 4). Nutrient and mineral composition of top growth (Tables 5 and 6) were analyzed by the University of Hawaii Feed and Forage Analyses Program, Agricultural Diagnostic Service Center and the soils analyses (Table 7) were conducted by the Department of Agronomy and Soil Science, University of Hawaii.

Data from Table 1 indicate that 'Tropic Shore' has a rapid initial vertical growth rate. On 8/13/82, 57 days after planting, it was the same height as the standard, kikuyugrass. 'Pensacola' was the tallest. On 10/14/83, 119 days after planting, 'Tropic Shore' was second highest at 5.1 inches (13 cm). Kikuyugrass was the highest at 8.3 inches (21.1 cm). 'Tropic Shore' is a relatively, low growing grass as indicated by its maximum height, at approximately 14 months from planting, of 15 inches (38.1 cm). All the other accessions, except 'Tropic Lalo', were taller and had a more rapid average vertical growth rate.

'Tropic Shore' has a rapid lateral growth rate as shown from the data in Table 2. On 12/13/82 it equaled kikuyugrass; although, it was not as aggressive as kikuyugrass. 'Tropic Shore' and T-37878 had a more open growth than the other accessions. Between 8/13/82 and 12/13/82 'Tropic Shore' had the most rapid rate of spread with an average of 51.7 inches (131.3 cm) per month. 'Pensacola' bahiagrass was very slow to spread from the beginning and had approximately one-fourth the spreading rate of 'Tropic Shore'. The measurements for lateral growth were taken on the full width of the plots (both sides of center). 'Tropic Shore' and 'Pensacola' had the best average vigor. Kikuyugrass, the standard, was always assigned a rating of 5 and its vigor was generally good.

Clipping studies were initiated on 2/24/83 (Table 3) by selecting two 5.4 square foot (.5 m<sup>2</sup>) sections in the middle of the main plots and clipping the grasses to a 1 inch (2.5 cm) height. The clipped top growth was oven-dried and weighed. The harvest on 2/24/83 included total unchecked growth since the plots were established on 6/17/82. Subsequent harvests, made approximately every other month, were taken in the same locations each time and represent the regrowth that occurred since the previous harvest. Highest average yields in descending order were as follows: 'Pensacola' bahiagrass, kikuyugrass, T-37878 seashore paspalum, 'Tropic Shore' seashore paspalum and 'Tropic Lalo' paspalum. All accessions responded favorably to the urea application on 5/20/83.

Percent cover, a measurement of density (Table 4), was determined by using a point frequency frame consisting of ten parallel pins evenly spaced on a 30 inch (76 cm) wooden frame. The frame was placed 6 times systematically along each side of the plots, at right angles to the center line. The number of times a single pin contacted a plant part was recorded for each placement. Kikuyugrass was the first to reach 100% density followed by 'Tropic Shore' seashore paspalum, 'Tropic Lalo' paspalum, T-37878 seashore paspalum and 'Pensacola' bahiagrass, respectively. Once reaching 100% cover, all species remained that way, except 'Tropic Shore'. Because percent cover measurements were also taken on the clipped areas, initiated 2/24/83, density of 'Tropic Shore' dropped since its stolons were not quite as closely knit as the other species and when the leaves were removed by clipping to a height of 1 inch (2.5 cm), some bare ground was visible. This occurred only after the first two harvests. Percent cover, by holding the point frequency frame at right angles to the center line of the plots, was also a function of lateral growth. For example, 'Pensacola' bahiagrass forms a very tight, dense growth but because it was slow to spread and cover the distance of the 30 inch (76 cm) frame, it was the last species to record 100% cover.



Table 1 - Maximum growth height and average vertical growth rate for approximately 12 months of five unclipped groundcover grasses measured at approximately 30-day intervals.

HEIGHT 1/

Treatments	8/13/82	9/20/82	10/14/82	11/15/82	12/13/82	1/10/83	2/24/83	3/23/83	4/28/83	5/31/83	6/27/83	7/28/83	9/9/83	Average Vertical Growth Rate in./mo. (cm/mo.)
'Tropic Shore' seashore paspalum	2.4	4.3	5.1	6.3	7.9	9.5	9.5	9.5	9.1	9.5	10.2	13.0	15.0	1.1 (2.8)
T-37878 seashore paspalum 2/			4.7	6.3	7.9	9.9	11.4	9.5	10.2	13.4	13.8	16.5	18.9	1.4 (3.6)
'Tropic Lalo' paspalum	1.2	1.6	2.4	2.4	2.0	2.0	2.0	2.4	3.2	3.5	5.1	7.1	11.0	.8 (2.0)
Kikuyugrass	2.4	7.1	8.3	10.2	11.8	13.0	12.6	11.8	12.2	15.4	20.1	20.1	20.1	1.5 (3.8)
'Pensacola' bahiagrass	3.2	5.1	4.7	6.7	7.9	8.3	9.9	10.2	10.2	11.4	13.4	15.4	16.2	1.1 (2.8)

1/ Figures are averages of three replications two measurements per plot

2/ Figures are averages of two plots, two measurements per plot Vertical growth rate per month is an average of 10 months.

Table 2 - Vigor, maximum lateral growth and average lateral growth rate per month for four months of five ground cover grasses evaluated at approximately 30-day intervals.

Treatments	WIDTH 1/								Average Vigor 3/ in./mo. (cm/mo.)	Average Lateral Growth Rate in./mo. (cm/mo.)
	8/13/82	9/20/82	10/14/82	11/15/82	12/13/82	Vigor Inches	Vigor Inches	Vigor Inches		
'Tropic Shore' seashore paspalum	5 18.1	4 89.0	4 134.0	4 174.9	3 225.0	4.0	51.7	(131.3)		
T-37878 seashore paspalum 2/										
'Tropic Lalo' paspalum	5 25.2	4 47.3	5 88.3	5 113.9	4 143.4	4.6	29.6	(76.2)		
Kikuyugrass	5 20.5	5 73.3	5 126.1	5 176.5	5 225.0	5.0	51.1	(129.8)		
'Pensacola' bahiagrass	5 7.9	4 16.5	4 30.3	4 45.3	3 59.1	4.0	12.8	(32.5)		

1/ Figures are averages of three replications, two measurements per plot

2/ Figures are averages of two plots, two measurements per plot. Lateral growth rate per month is an average of two months.

3/ Vigor ratings were in comparison to kikuyu grass, the standard, which was always assigned a 5 rating. Below 5 is better, over 5 is worse.

Table 3. - Oven-dry top growth yields and height of regrowth at harvest of five grown cover grasses clipped to 1 in (2.5 cm) at approximately 60-day intervals. 1/

<u>Treatments</u>	<u>2/24/83</u>		<u>4/28/83</u>		<u>6/27/83</u>		<u>9/9/83</u>		<u>Average</u>	
	<u>Yield</u>	<u>Height</u>	<u>Yield</u>	<u>Height</u>	<u>Yield</u>	<u>Height</u>	<u>Yield</u>	<u>Height</u>	<u>Yield</u>	<u>Height</u>
	<u>lb./ac.</u>	<u>Inches</u>	<u>lb./ac.</u>	<u>Inches</u>	<u>lb./ac.</u>	<u>Inches</u>	<u>lb./ac.</u>	<u>Inches</u>	<u>lb./ac. (kg./ha.)</u>	<u>Inches (cm)</u>
'Tropic Shore' seashore paspalum	5465	9.5	357	3.2	1625	5.5	589	4.7	2009 (2252)	5.7 (14.5)
T-37878 seashore paspalum 2/	4554	10.6	964	3.9	2768	6.3	1607	5.9	2483 (2783)	6.7 (17.0)
'Tropic Lalo' paspalum	1554	2.0	375	1.6	893	3.2	1429	5.1	1063 (1192)	3.0 (7.6)
Kikuyugrass	4429	12.6	1750	7.5	2786	15.4	1947	13.0	2733 (3064)	12.1 (30.7)
'Pensacola' bahiagrass	2750	9.9	2161	8.7	3268	12.2	3501	15.4	2920 (3273)	11.6 (29.5)

1/ Figures are averages of three replications, two samples per plot.

2/ Figures are averages of two samples from one plot.

Table 4. - Percent cover of five ground cover grasses measured at approximately 30-day intervals

Treatments	PERCENT COVER 1/											
	8/13/82	9/20/82	10/14/82	11/15/82	12/13/82	1/10/83	2/24/83	3/23/83	4/28/83	5/31/83	6/27/83	7/28/83
'Tropic Sho' seashore paspalum	14	59	88	91	100	100	100	84	77	91	100	100
T-37878 seashore paspalum 2/			49	64	93	98	100	100	100	100	100	100
'Tropic Lalo' paspalum	22	80	86	94	99	100	100	100	100	100	100	100
Kikuyugrass	22	85	98	100	100	100	100	100	100	100	100	100
'Pensacola' bahiagrass	17	43	56	68	79	92	99	100	100	100	100	100

1/ Figures are averages of three replications, six measurements per plot.

2/ Figures are averages of two plots, six measurements per plot.

Table 5. - Nutrient Composition of five ground cover grasses harvested on 2/24/83. 1/

<u>Treatments</u>	<u>DM</u>	<u>Ash</u>	<u>CP</u>	<u>EE</u>	<u>NDF</u>	<u>ADF</u>	<u>PML</u>	<u>C</u>
	<u>%</u>							
'Tropic Shore' seashore paspalum	91.0	10.0	4.9	1.3	69.9	29.9	5.1	23.6
T-37878 seashore paspalum <u>2/</u>	91.0	10.4	7.0	1.9	64.6	26.3	<b>4.0</b>	21.0
'Tropic Lalo' paspalum	90.0	6.9	<b>3.1</b>	1.2	61.6	27.0	4.0	22.5
Kikuyugrass	91.3	7.1	7.1	1.1	72.8	35.5	7.0	28.8
'Pensacola' bahiagrass	91.1	10.4	5.9	1.4	70.0	32.0	4.1	26.2

DM = Dry Matter, as sampled; CP = Crude protein; EE = Ether extract (crude fat); NDF = Neutral detergent fiber; ADF = Acid detergent fiber; PML = Permanganate lignin; C = Cellulos

1/ Figures are averages of three replications, two samples per plot,

2/ Figures are averages of two samples from one plot.

Table 6. - Mineral Composition of five ground cover grasses harvested on 2/24/83\* 1/

<u>Treatments</u>	<u>P</u>	<u>K</u>	<u>Ca</u> <u>%</u>	<u>Mg</u>	<u>Na</u>	<u>Mn</u>	<u>Fe</u>	<u>cu</u> <u>PPM</u>	<u>Zn</u>
'Tropic Shore' seashore paspalum	0.10	1.87	0.36	0.31	0.06	84	1249	10	65
T-37878 seashore paspalum <u>2/</u>	0.10	2.68	0.43	0.41	0.10	123	868	10	80
'Tropic Lalo' paspalum	0.09	0.78	0.38	0.19	0.09	112	837	4	73
Kikuyugrass	0.11	1.95	0.33	0.30	0.04	136	593	5	67
'Pensacola' bahiagrass	0.13	1.14	0.53	0.22	0.04	145	2158	5	79

\* Dry Matter **basis**

P = Phosphorus; K = Potassium; Ca = Calcium; Mg = **Magnesium**; NA = Sodium; Mn = Manganese; FE = Iron;  
Cu = Copper; Zn = Zinc

1/ Figures are averages of three replications, two samples per plot,

2/ Figures are averages of two samples from one plot.

Table 7. - Soil analyses of plots sampled 5/19/83. 1/

Treatments	pH	N	P	K	Ca	Mg
		%		lb./acre	(kg/ha)	
'Tropic Shore' seashore paspalum	6.7 (SL acid)	.15	25 (28) (V. low)	40 (45) (V. low)	750 (841) (V. low)	1700 (1906) (Mod.)
T-37878 seashore paspalum <u>2/</u>	6.7 (SL acid)	.15	22 (25) (V. low)	36 (40) (V. low)	558 (625) (V. low)	1873 (2100) (Mod.)
'Tropic Lalo' paspalum	6.7 (SL acid)	.15	25 (28) (V. low)	40 (45) (V. low)	667 (748) (V. low)	1833 (2055) (Mod.)
Kikuyugrass	6.7 (SL acid)	.15	25 (28) (V. low)	40 (45) (V. low)	333 (654) (V. low)	1667 (1869) (Mod.)
'Pensacola' bahiagrass	6.7 (SL acid)	.14	30 (34) (V. low)	40 (45) (V. low)	583 (654) (V. low)	1800 (2018) (Mod.)

1/ Figures are averages of three replications.

2/ Figures are averages of two plots.

Performance of 'Tropic Shore' in SCS Field Plantings in Hawaii and Guam

Cooperator: Orca Sea Farms

Date of Planting: 10/83

Location: Palaau, Molokai

Elevation: 20 to 30 feet (6.1 to 9.1 m)

Annual Rainfall: 12 inches (305 mm)

Soil Series: Mala' silty clay

Evaluated by: Robert Joy, Plant **Materials** Specialist (PMS) (11/9/83) and Tim Stack, District Conservationist (DC), Kaunakakai Field Office (8/29/84).

Evaluations and Remarks:

- 11/9/83 - This planting consists of a seed increase and a aquaculture pond bank field planting. The increase planting of approximately .25 acre (.1ha) is growing very well. Stand and vigor are excellent. The manager is irrigating with brackish water which is providing excellent weed control because the weeds are not as tolerant of the saline conditions as the 'Tropic Shore'. Establishment on pond banks is poor. It appears the stolons were planted too far above the water line or the pond water level fluctuates too much.
- 8/29/84 - The increase area looks good but plantings on the pond banks are taking slowly. The pond banks were sprigged twice. The second planting was lower (closer to the water) than the first planting and the results are better than the first time.

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Cooperator: Dave Giusti, Morning Sun Farms

Date of Planting: 9/02

Location: Merizo, Guam

Elevation: 20 feet (6.1 m)

Annual Rainfall: 90 inches (2,286 mm)

Soil Series: Silty clay to clay

Evaluated By: Joan Perry, Resource Conservationist, Guam Field Office.





University of Hawaii Marine Shrimp Hesearch. Stabilizing aquaculture pond banks with 'Tropic Shore' seashore paspalum at the water line and bermudagrass on remaining area of berms,,

Cooperator: Fish Farms Hawaii

Date of Planting: 10/73

Location: Laie, Oahu

Elevation: 10 to 40 feet (3 to 13.3 m)

Annual Rainfall: 50 inches (1,270 mm)

Soil Series: Dug pond

Comparison Plant(s): Volunteer sedge (Cyperus sp.), paragrass (Brachiaria mutica),  
hilograss (Paspalum conjugatum).

Evaluated By: Otis Gryde, DC, Honolulu Field Office and Dee Palmer, PMS (8/16/74);  
Otis Gryde (9/11/75, 7/15/76, 2/17/77, 5/17/78, 12/4/79).

Evaluations and Remarks:

8/16/74 - All banks on ponds one through four have been planted. Most all banks are well protected now with a solid mat of 'Tropic Shore'. Stand, vigor and erosion control are excellent. Weed competition is light. Ponds are used for prawns and catfish. Manager is well please with the protection 'Tropic shore' provides and cultural management has been good. There has been little volunteer growth of sedge, paragrass or hilograss at the water's edge and they are providing little, if any, protection from wave action.

9/11/75 - 'Tropic Shore' is the only species evaluated. Stand, plant vigor and erosion control are good.

7/15/76 - Stand and vigor of 'Tropic Shore' are excellent. Some weed competition. Paragrass is encroaching.

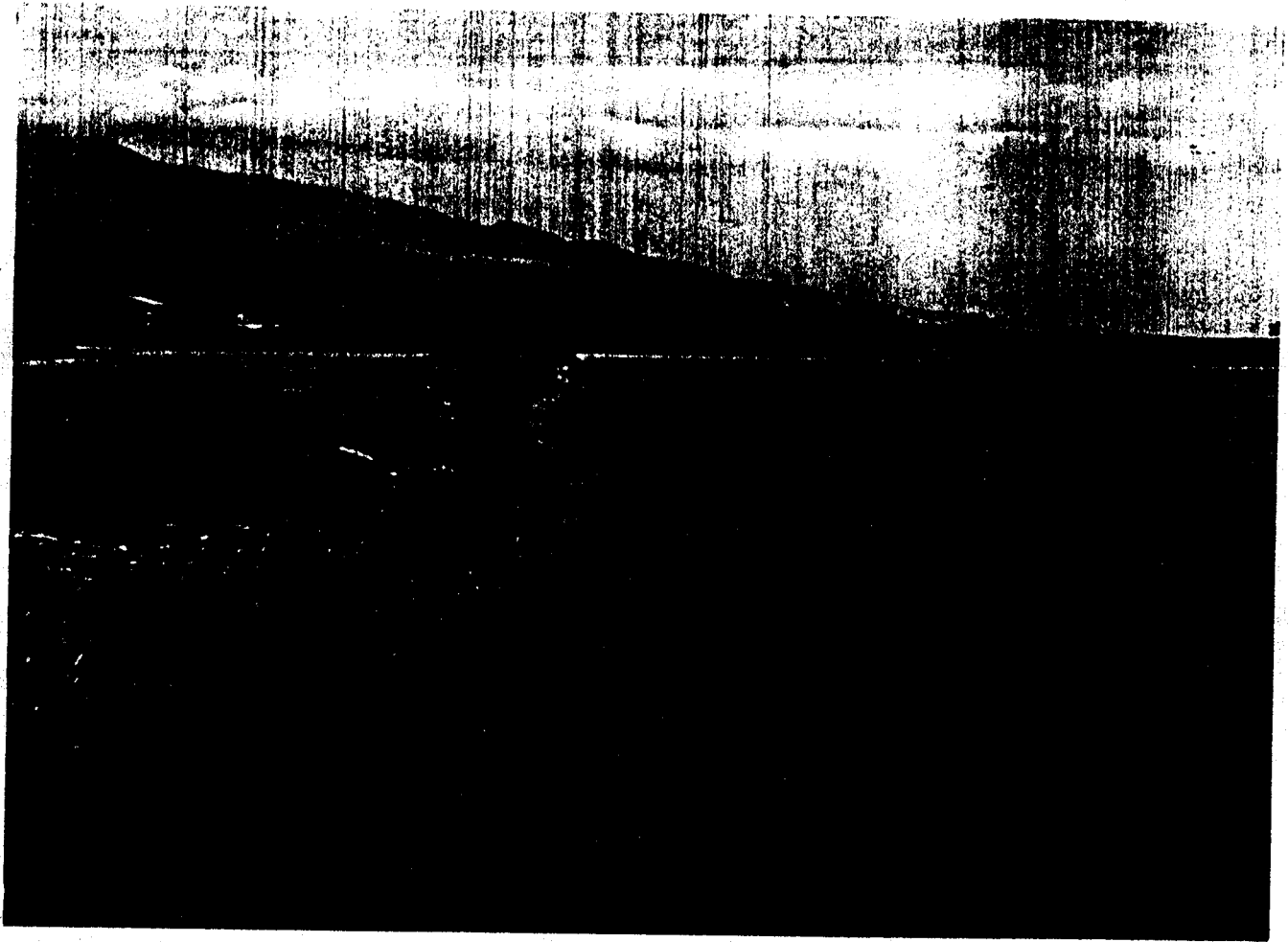
2/17/77 - Stand and vigor of 'Tropic Shore' are good. Paragrass is too aggressive and should be controlled.

5/17/78	-	<u>Criteria</u>	<u>'Tropic Shore'</u>	<u>Paragrass &amp; Hilograss</u>
		<u>Stand:</u>	Good	Excellent
		<u>Vigor:</u>	Fair	Excellent
		<u>Erosion Control:</u>	Good	Good
		<u>Weed Competition:</u>	Moderate	None
		<u>Management:</u>	Good	Good

'Tropic Shore' is doing well for erosion control but paragrass and hilograss are overtaking it.

12/4/79 - Stand and vigor of 'Tropic Shore' are excellent.

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'Tropic Shore' stabilizing aquaculture pond bank at County of Maui, Agricultural Research, Kihei, Maui. Stolons were planted at or slightly below water level. Planting is three months old.

Performance of 'Tropic Shore' in SCS Mield Plantings in Florida

Cooperator: Martin County

Date of Plantings: 7/86

Location: Jensen Beach County Park, Stuart, Florida

MLRA: 155

Hardiness Zone: 10

Soils: Sand Beach

Comparison Plant(s): 'Adalayd'\* seashore paspalum (Paspalum vaginatum) and T-37878  
seashore paspalum (Paspalum vaginatum).

Evaluated By: Robert Clennon, PMS

Evaluations and Remarks, 1986:

<u>Criteria</u>	<u>'Tropic Shore'</u>	<u>T-37878</u>	<u>'Adalayd'</u>
<u>Seedling Vigor:</u>	3	3	3
<u>Survival:</u>	7	8	9
<u>Spread:</u>	7	9	8
<u>Vigor:</u>	3	5	3
<u>Insect Resistance:</u>	1	1	1
<u>Disease Resistance:</u>	4	5	3
<u>Cold Tolerance:</u>	1	1	1
<u>Salinity Tolerance:</u>	3	3	3
<u>Drought Tolerance:</u>	4	5	3
<u>Cover:</u>	7	9	8

Visual Observation Data: 1 - Excellent, 3 - Good, 5 - Average, 7 - Fair, 9 - Poor,  
0 - None

Overall, this was a poor planting with the best survival only 30% and the best spread 8 inches (20.3 cm) the first year. 'Tropic Shore' performed better after a good winter and spring in the shadehouse compared to the other two accessions.

\* 'Adalayd' is marketed in California under the trade name "Excalibre".

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Cooperator: Pinellas County

Date of Planting: 7/86

Location: Fort DeSoto County Park, St. Petersburg, Florida

MLRA: 155

Hardiness Zone: 9

Soils: Hydraulic dredge fill of **sand and** broken shell

Comparison Plant(s): 'Adalayd' seashore ~~paspalum~~ (Paspalum vaginatum) and T-37878  
seashore ~~paspalum~~ (Paspalum vaginatum).

Evaluated By: Robert Clennon, PMS.

Evaluations and Remarks, 1986:

<u>Criteria</u>	<u>'Tropic Shore'</u>	<u>T-37878</u>	<u>'Adalayd'</u>
<u>Seedling vigor:</u>	3	3	3
<u>Survival:</u>	3	3	9
<u>Spread:</u>	3	3	5
<u>Vigor:</u>	3	3	3
<u>Insect Resistance:</u>	3	3	3
<u>Disease Resistance:</u>	3	3	3
<u>Cold Tolerance:</u>	3	3	3
<u>Salinity Tolerance:</u>	3	3	3
<u>Drought Tolerance:</u>	3	3	3
<u>Cover:</u>	3	3	9

Visual Observation Data: 1 - Excellent, 3 - Good, 5 - Average, 7 - Fair, 9 - Poor,  
0 - None

'Tropic Shore' and T-37878 are performing equally well and better than 'Adalayd'.  
One visit was made to the site in 1987 and the accessions are still very even,

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Cooperator: Lee County

Date of Planting: 3/85

Location: Sanibel Island Causeway, Fort Myers, Florida

MLRA: 155

Hardiness Zone: 10

Soils: Compacted sand

Comparison Plant(s): T-37878 seashore ~~paspalum~~ (Paspalum vaginatum).

Evaluated By: Robert Clennon, PMS.

Evaluations and Remarks:

<u>Criteria</u>	<u>1985</u>		<u>1986</u>	
	<u>'Tropic Shore'</u>	<u>T-37878</u>	<u>'Tropic Shore'</u>	<u>T-37878</u>
<u>Seedling/Spring Vigor:</u>	1	1	3	1
<u>Survival:</u>	2	2	3	2
<u>Spread:</u>	1	1	3	1
<u>Vigor:</u>	3	1	3	1
<u>Insect Resistance:</u>	1	1	1	1
<u>Disease Resistance:</u>	3	3	3	3

<u>Criteria</u>	<u>1985</u>		<u>1986</u>	
	<u>'Tropic Shore'</u>	<u>T-37878</u>	<u>'Tropic Shore'</u>	<u>T-37878</u>
<u>Cold Tolerance:</u>	3	3	3	3
<u>Salinity Tolerance:</u>	3	3	3	3
<u>Drought Tolerance:</u>	5	3	5	3
<u>Cover:</u>	2	1	5	3
<u>Weed Competition:</u>	Severe	None	Severe	None
<u>Traffic Exposure:</u>	None	Severe	None	Severe

Visual Observation Data: 1 - Excellent, 3 - Good, 5 - Average, 7 - Fair, - Poor, 0 - None

This was not a very even planting site by virtue of the external forces to which the plants were exposed. The site was an area on a causeway between the highway and a parking lot for people wishing to fish and otherwise use the ocean. The county was going to fence it to prohibit traffic but did not. T-37878 was exposed to traffic which it tolerated but which kept out weeds. 'Tropic Shore' did not get driven on, but had a severe weed exposure which has had an impact on its performance,

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Cooperator: Pinellas County

Date of Planting: 7/84

Location: Fort DeSoto County Park, St. Petersburg, Florida

MLRA: 155

Hardiness Zone: 9

Soils: Hydraulic dredge fill of sand and broken shell

Comparison Plant(s): T-37878 seashore paspalum (*Paspalum vaginatum*).

Evaluated By: Robert Glennon, PMS

Evaluations and Remarks:

<u>Criteria</u>	<u>1984</u>		<u>1985</u>	
	<u>'Tropic Shore'</u>	<u>T-37878</u>	<u>'Tropic Shore'</u>	<u>T-37878</u>
<u>Seedling/Spring Vigor:</u>	3	3	3	3
<u>survival:</u>	2	1	9	8
<u>Spread:</u>	2	1	9	8
<u>Vigor:</u>	3	3	3	3
<u>Insect Resistance:</u>	3	3	3	3
<u>Disease Resistance:</u>	3	3	3	3
<u>Cold Tolerance:</u>	9	8	Destroyed by hurricane in September	
<u>Salinity Tolerance:</u>	3	3	3	3
<u>Drought Tolerance:</u>	3	3	3	3
<u>Cover:</u>	2	1	9	8

Visual Observation Data,: 1 - Excellent, 3 - Good, 5 - Average, 7 - Fair, 9 - Poor,  
0 - None

Both accessions performed well the first year with T-37878 surviving and spreading a little better. Record cold hit both accessions hard the winter of 1984-1985. Neither recovered well before Hurricane Elena destroyed the planting.

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